DOCUMENT RESUME

ED 410 942 IR 018 524

AUTHOR Jacobs, Barbara L.
TITLE Using Internet To Integrate Curriculum.
PUB DATE 1996-06-27
NOTE 101p.; Master's Paper, National-Louis University. Some pages may not copy well.
PUB TYPE Dissertations/Theses (040) -- Reports - Evaluative (142)
EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Computer Mediated Communication; *Computer Uses in Education; *Curriculum Development; *Educational Cooperation; Educational Facilities; Grade 5; Intermediate Grades; *Internet; *Museums; *Online Systems; Science Education; Science Teaching Centers; Students
IDENTIFIERS *Digitizing; Illinois; Interactive Courseware; Technology Integration

ABSTRACT

This paper describes a year-long project in a fifth grade classroom to investigate the recurring flooding of the Pecatonica River (Illinois) and its effects on plant and animal life. The project was funded by a grant from the Illinois State Board of Education (ISBE) to involve elementary school classrooms with a consortium of museums in the on-line digitization of museum artifacts. The project was designed to: (1) develop an Internet- based interactive curriculum that utilizes the unique resources and capabilities of Illinois museums; (2) demonstrate how engaged students involved in relevant, community-based learning will translate into responsible citizenry; (3) demonstrate how students can access the wealth of history, artifacts, and fine art of Illinois museums; and (4) develop on-line digitized images and documents for the on-line project about the recurring flooding of the Pecatonica River and how it affects plant and animal life. Chapter 1, "Proposal," discusses the focus of the study, the methodology, and data collection methods. Some areas covered in chapter 2, "Review of Literature," include: student benefits: opened-doors; student benefits: learning styles; teacher benefits; and the future. Lastly, chapter 3 describes the research project and discusses areas such as: setting, attitude, motivation, achievement, cooperative learning, and peer reflection. Two students participated in a 2-day regional workshop on producing Quicktime videos and making a home page on the Internet for the school. Six students were selected to attend an overnight trip to visit the school's partner museum, the Chicago Academy of Science. Appendices include student surveys, student letters asking to attend the Chicago field trip, student letters describing what the classroom would be like without computers and the Internet, snapshots of class activities, reprinted newspaper article on the class, and Internet addresses. (Contains 34 references.) (SWC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 410 942

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Using Internet to Integrate Curriculum

by

Barbara L. Jacobs

Beloit 44

Dr. Margaret Thomas, Core Instructor

Submitted in partial fulfillment

of the requirements for the degree of Master of Education,

Interdisciplinary Studies in Curriculum and Instruction.

The Foster G. McGaw Graduate School of

National College of Education

National-Louis University

June 27, 1996

IR 018534

BEST COPY AVAILABLE

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Barbara L. Jacobs

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Table of Contents

Chapter I Proposal Page

Rationale of the Study 1
The Focus of the Study 3
Methodology 7
Data Collection Methods 8

Chapter II Review of Literature

Introduction 9
Definition of Terms 10
Student Benefits: Opened-doors 12
Student Benefits: Learning styles . . . 16
Teacher Benefits 18
The Future 21
Conclusion 23

Chapter III The Research Project

Setting 25
The study 27
Attitude 29
Motivation 38
Achievement 46
Cooperative Learning 52
Peer Reflection 55
Summary 61
The Future 68

References 71

Apendices

A. Surveys 74
B. Student Letters 78
C. Snapshots of Activites 84
D. Media Coverage 87
E. Internet Addresses 90

Chapter I

Proposal

Rationale of the Study

I work in an elementary building which houses grades two to five, with four sections of each grade level. I taught a fifth grade class of twenty-four, Caucasian, middle-class students. My three-story, old brick school is located in a rural setting with the community very involved in the educational system. My classroom contained five networked computers and one stand alone Internet computer in a large room. The student's desks are arranged in groups.

I strongly believe that technology, especially computers, should be an important part of any educational curriculum. Technology is my energy source, the ignitor for my new outlook for education. To begin at the beginning, three years ago, another teacher who was interested in using computers in the classroom had asked me to go along with her on a three day seminar on integrating computers into the curriculum. I was hooked by the time we came home. My enthusiasm for computer integration was contagious to those around me. My principal agreed with my views about technology in the classroom and helped write a Pioneering Partner Grant, which we won. The Pioneering Partner Grant not only allowed me to pilot a computer-based program, but created publicity, helped formed partnerships with

businesses and exposed this concept to my skeptical colleagues. What had been a skeptical school board three years ago, now is one that created a budget to include technological items for more and more classrooms every year. By the school year 1997-98, all elementary classrooms, grades one through five, will have five computers.

Compact discs and CD-ROMs, hypertext, videodiscs, microcomputer-based laboratories, virtual reality, local and wide area networks, instructional software, Macs, PCs, laptops, notebooks, educational television, voice mail, e-mail, satellite communication, cable tv, interactive video and The Internet are a list of the "hot" technologies flowing into the country's school systems. These technologies are powerful, exciting, and becoming readily available. I want to be a part of this trend and one of its pioneers. I believe Internet supports engaged learning which combines naturally with my Educational Philosophy of creating cooperative learning groups.

Having the five computers in my classroom forced me to make radical changes in the way that I taught so that I could still cover all the subject areas. Where there would be straight rows in my class, now there are centers or groups. By switching to grouping, I saw my students develop memberships and shared influence within their groups (Schmuck & Schmuck, 1992). The students wrote, shared and published their works.

The success of the integrated language arts program left both my students and me wanting for more computer technology integration in our classroom. The

Internet seemed a logical next step for us. This brought me to my question; how can I use Internet to integrate curriculum?

The Focus of the Study

I wanted to design a curriculum on how to integrate the use of The Internet into my fifth grade classroom. I wanted to study this to observe how my students would learn and would react to cruising the superhighways. I also desired to see how it could enhance all the other academic subject areas. I wanted to evaluate how both the students and I would change and learn together.

During the past three years integrating technology in my classroom was both rewarding and frustrating. Those three years of planning included: lesson plans to be created to integrate the five computers into my curriculum, disseminating to my peers and other districts how to buy-in to computer integration, creating new business partnerships and helping to create the school district's technology committee. I also attended Leadership conferences presented by the Illinois State School Board (ISBE), attended TECH 2000 at the State Capitol with four students, and, of course, kept the school board informed of all I was doing. And now, I found myself looking for the next logical step with computers, which was to be The Internet.

My principal, said, "Barb, I have a grant here that I'd like to put your

name on as the classroom teacher. It is about getting an Internet connection into your room."

We received the grant. This grant was from the Illinois State Board of Education (ISBE). The ISBE was working with a consortium of museums to involve up to 100 classrooms in the co-development of on-line digitization of museum artifacts. We were to be one of the 100 classrooms in the state!

This ISBE grant enabled me to implement my study on integrating Internet into my curriculum.

In November, after attending a three-day conference in Springfield about the grant, our school was assigned a Museum, The Chicago Academy of Science. Our assignment was to come up with a year-long project, that would include the creation of strategies for potential student projects involving treasures and artifacts in various museums throughout IL and the U.S. The project for our school was the reoccurring flooding of the Pecatonica River and its affects on plant and animal life.

The outcomes of the project were:

1. to develop on Internet an interactive curriculum project that utilizes the unique resources and capabilities of IL Museums,
2. to demonstrate how engaged students involved in relevant, community-based learning will translate into responsible citizenry,
3. to demonstrate how students can access the wealth of history, artifacts, and fine art of Illinois' museums,

4. to develop on-line digitized images and documents for the on-line project about the reoccurring flooding of the Pecatonica River and how it affects animal and plant life.

To implement this Pecatonica grant project, I created four groups with six to eight students. The groups were: history, pollution and water-quality, plants and animals. I allowed the students to select their own groups. Students from the other fifth grade classrooms, that were interested, were also allowed to sign up. The ISBE grant required that two students participate in a regional two-day workshop on producing Quicktime VR videos and making a Home Page on the Internet for our school. We were also required to participate in a three-day, overnight, visit with six students to our museum in Chicago. (Overnight with six kids! Lord, what had I gotten myself into.) The students selected for these workshops were called the Chicago Six, by the classroom.

My philosophy of education has changed over my many years of teaching. My experience with students and my past had shown me that not everyone can succeed and progress my using the same steps as other people. This belief has influenced how and why I teach differently to different students. I believe that each and every child can learn and achieve their best. Kathleen A. Butler, founder and director of The Learner's Dimension, agreed that all children can learn when a curriculum that emphasizes thinking and problem-solving is taught (Butler, 1988). Internet will most definitely involve both thinking and problem-solving.

Each child has a different potential to learn and reaches those stages at

different times and grade levels. Through technology, I wanted to reach all types of learners. By using a totally new learning experience such as Internet, I hoped to hook that student with yet another teaching technique. The computer as a tool for students and teachers is not going to disappear from our world; not from business, not from home use and not from the school. I was excited about finding the best way to incorporate Internet technology in my curriculum. I wanted to establish a learning environment in which students developed their own learning from experiences. They would acquire and refine this knowledge in a meaningful way to them. In other words, learn to learn.

Just as my educational philosophy changed, I also believed a child's learning level changes as they grow. These variances of learning styles made me wonder, can Internet be another learning style to influence the students? According to Joyce (1992), Piaget believed in developing instruction based upon the developmental level of the student so as to increase the cognitive skills of each student. By using this new concept of Internet, I believed I could structure the classroom environment so that the student was always being nudged just a little bit higher so they could be continually moving on to the next more complex level of learning.

Methodology

Educationally, I believed my World View leaned towards the broadened positivist because I found some truths were more compelling than others. I thought that learning should be broken down into small enough steps to assure success. To help assure this success, a variety of teaching methods were needed. Children would be interacting in cooperative groups, pairs, and independently. Susan Black, in The Executive Educator (1993, Nov.), cited these various teaching styles would help maximize the student's learning. With Internet, each student could travel and explore at his or her own pace.

I implemented the use of Internet in the fall of 1995. I planned a year-long program to create an understanding and activities for how to use the superhighway throughout the curriculum. Our focus of learning was the reoccurring flooding of the Pecatonica River and its affects on plant and animal life. Each student could keep and add to his or her own portfolio as they traveled and explored the Pecatonica River through field trips and Internet. Authentic assessment fit perfectly into this type of learning because the student told and explained where they found their information. Textbooks and paper tests had been the main source of assessment for so long, it is gratifying that now other forms of assessments are being thought of as important and legitimate instruments of evaluation. An article written by Valauskas (1993), stated a variety of ideas for integrating Internet and practical uses for being online in the classroom. Subscribing to KIDSHERE,

exchanging e-mail pals, taking virtual trips, and participating in electronic science experiments were a few of Valauskas' suggestions for using Internet.

Data Collecting Methods

I used several methods of data collection during the year's program. They included:

1. teacher observations/ weekly log,
2. portfolio of activities and their reflections,
3. journals,
4. questionnaires/ surveys,
5. interviews,
6. participant observations,
7. photos/ videos.

Using these data collections methods, I was able to evaluate the great success of implementing the Internet into my fifth grade curriculum, during the 1995-1996 school year.

CHAPTER 2

Review of Literature

Introduction

Students today need to be exposed to all types of learning situations. If the purpose of education is to make a student more effective in life, then the use of Internet in the classroom curriculum is certainly a step toward a new learning style and the future. We count on the teacher to expand the opportunities for our students to learn so that both the child and the teacher succeed.

What makes learning happen for a child? What is the key to a school's success? In most cases, there is no one thing.

It's a combination of the right ideas, strategies and people that spark the urge to learn in a child. Teachers can no longer rely solely on chalkboard, chalk, paper, pencils and a text. Calculators, computers, courseware, and manipulatives are also necessary for good instruction. Today, educators have incredible opportunities. Technology is making classrooms more interactive and bringing a wealth of new resources to schools across the country.

Not a lot in the last decade has been written about the use of Internet in the classroom. Using the resources I did find, I divided my review of literature into three sections: 1. definition of terms,

2. benefits to students and teachers,

3. the future.

Definition of Terms

What is the World Wide Web in plain English? The following is a list of a variety of definitions to help understand the whole new vocabulary of the Web and Internet:

1. The Internet, is not a service, but an electronic network of computers that includes nearly every university, government, and research facility in the world, plus many commercial sites. It is basically text-oriented,
2. " the net", slang or short name for internet,
3. browsers, a software tool that lets you navigate through the limitless ocean of data and media found on the web,
4. WWW, World Wide Web which provides a searchable access to multimedia information on the internet. (text, sounds, pictures, and video, etc.),
5. "the web", slang for WWW,
6. modem, a device that enables data from one computer to travel to another computer by using ordinary telephone lines,
7. Internet service provider, the way to get access on

the internet, generally there is a fee,

8. e-mail, an electronic mail service that sends and receives mail, no matter what kind of computer you're using,
9. O.T.A., The Office of Technology Assessment, Congress of U.S.,
10. on-line, while you are using the internet, you are on-line which requires an address or account,
11. Web page, is a mix of text and commands created with a document language called HyperText Markup Language (HTML),
12. Web site, where files physically reside on the WWW, (A Web site computer contains one or more special files called Web pages.)
13. Hot links, links in the Web page documents to other Web pages on related subjects, (Represented on screen typically as underlined words of a different color than the regular text.)
14. "surf the net", when an on-line user selects a hot link or highlighted text with a mouse click from a Web page, the Web browser program locates and loads the linked document almost immediately. The user is then looking at the new Web page, it could be from a server in Finland or Japan, that he or she called up. In this way a user can 'browse the Web'(a term often used interchangeably with 'surf the Net').
15. technophobe, a person with a fear of technology.

(Hertzberg, 1995; Kantor, 1994; and the Internet).

Student Benefits: 'Opened doors'

Morasch (1996) lists the benefits of networks as communications, information access and to share sources. The communications will allow students, teachers, and faculty to communicate with others in classrooms, schools, communities, states, or countries. Information access will allow students to reach beyond the physical limitations of the classroom to obtain information relevant to their learning via the Internet to other computers at any other networked location on the planet. Sharing resources, the students will have access to remote files, share and publish their classroom projects, collaborate on projects with classroom global.

More people than ever are using their PC'S with modems to go on-line through local bulletin board systems, on major services, or directly onto the Internet. Communication is a compelling force for most people. Students on-line can engage in a public discussion over days, weeks or months. Real-time chat sessions let dozens of students hold simultaneous conversations. Virtual pen pals (Kantor,1994).

Dewey (1943) suggests that the ideal home for a child is to work out his constructive instincts, not the traditional schools that teach by listening. Dewey addresses the question - 'What are we going to do with interest? Are we to ignore it, or just excite and draw it out? Or shall we get hold of it and direct it to something ahead, something better?' (Internet could definitely be the something

better).

Viadero (1996) states children are enthusiastic about learning in the classroom. Students are talking about school at home for first time in years. This may be the answer to how do we keep some children excited about learning. Exploring new avenues that provide new learning and teaching opportunities gives everyone something to look forward to.

Lynn (1995) believes students armed with digital cameras can take pictures during field trips, write stories to accompany the photos and post their work on the district's World Wide Web home page, where it is available to a truly worldwide audience.

Morasch (1996) maintains that networking places students in the driver's seat, offering a position of power and personal initiative. Students define problems, gather data, communicate with people previously inaccessible, and creatively produce representations of their learning. They search libraries and log on to networks to find information to support their learning projects. We've seen a direct, positive link between students' improved writing and project skills.

Golubich (1996) couldn't wait to see the look on their faces when the class was instantly connected to NASA, university libraries, and classrooms in far-off places. Exchanging e-mail with people in other countries, downloading space pictures, and retrieving articles from gopher sites is heady stuff.

There is a myriad of treasures on the WWW, the links, and sources of direct learning is exploding. Even the most casual of browsing reveals scads of great

resources. It is the perfect arena for making education relevant to real-life. Webster defines a network as a system of interrelated or interconnected elements. There's no definition yet for what's happening to the student who learns on the network, but this is how it might be defined: Networked learning;

1. a system for allowing students to connect with and relate to all the 'world's available knowledge';

2. an absolute necessity for understanding today's global, knowledge-based society (Morasch, 1996).

Each aspect of school should be related to life as a whole through culture, discipline, information and utility (Dewey, 1943). Internet certainly has the potential to incorporate all five of Dewey's ideals that he believes should be represented in schools:

1. general culture,

2. moral development,

3. professional training,

4. practical utility,

5. and discipline.

"Allowing students to explore and create content will instill in them confidence in their own ability to direct inquiries, locate and evaluate new sources of information, and contribute original work to the global community of learners" (Morasch, 1996, p.3).

If teachers want their students to monitor the fall foliage change throughout

the Midwest, they can connect with Access Excellence (http://www.gene.com/ae) for a project idea. They can talk to scientists about issues that crop up in the classroom, or even arrange a regional project (Weld, 1996). D'Ignazio (1992) confirms student uses through the use of electronic slide shows, simulations and interactive teaching modules.

Mr. Tinkler, consultant to the State Government in Australia, claims the new information technologies have the potential 'to bring about a revolution that could parallel the impact on education of the development of the printing press'. Today's teachers are the t.v. generation trying to teach the Nintendo generation, and a third way has to be found to benefit both (Richards, 1994). Internet even in its infancy, has these possibilities.

On January, 1994, Vice President Al Gore challenged the telecommunication industry to wire every school and library for access to the 'National Information Infrastructure'. He hoped to start a change in education akin to the one brought about by the advent of the telephone (West, 1995).

The job of providing interactive instructional programming could become a lot easier with the advent of the Information Superhighway. One possible outcome of the new telecommunication regulations under consideration in Washington would be to require cable TV and local phone companies to wire schools with high-speed communication lines and provide universal interactive TV service to families that couldn't afford a hookup. That could provide a vital link between classrooms and living rooms (Armstrong, 1994).

Student Benefits: Learning styles

These two quotes state my philosophy about student learning:

"Humans are small group beings"

"No man is an island, entire of itself"

(Johnson et al, 1993).

Frank B. Withrow believes we need a radical change in the way our teaching and learning takes place. No more sage-on-the-stage, but instead a teacher who is a guide and mentor. Frank B. Withrow is the director of the Learning Technologies Project of the Washington-based Council of Chief State School Officers. (Stanfield, 1995).

The role of teachers will clearly change. Teachers will spend less time giving routine lectures or grading multiple-choice exams. Instead, they should be able to spend time designing challenging assignments, serving as consultants, providing inspiration, and rewarding success. Done well, the system should allow all teachers to spend time doing what is most rewarding about teaching (Kelly, 1990).

We need to learn to use a constructivist approach to teaching and learning. This approach creates opportunities for students to think, explore and help to develop their own understanding and directon of learning.

"Informational technology in the classroom does much more than boast enthusiasm or expand informational sources. Its use fundamentally alters the role of teachers and students. For example, when students write to impress a pen pal or

a distant expert, the teacher is no longer the sole judge of quality, and grades are less of a motivating factor than in traditional classrooms." (Peha, 1995).

The CSILE (Computer Supported Intentional Learning Environments) is based on the basic principle of cognitive science. It's core is that the traditional model of schooling, where the teacher lectures and students read from textbooks, is no longer adequate. The students must start with what they already know and build their knowledge from there. They must do their own research and work collectively on realistic problems they are studying. More than a decade ago, Brown and Palincsar perfected a technique for improving children's reading comprehension while studying ecology and conservation biology. Their approach, 'Reciprocal Teaching' was simple: Teach children to use the same strategies that expert readers use to get a handle on difficult text. The students break into research groups to use classroom reference materials or roam the Internet for the information they need. They then 'jigsaw', which means that each group shares with the other groups. They are in short, constructing their own knowledge (Viadero, 1996).

Rather than listening to me lecture, I found that while the students are browsing the internet, they encounter more diverse expert opinions, work more independently and proceed at their own pace.

Cooperative leaning requires the teacher to create interdependence among the group members (Slavin et al., 1985). Collaborative skills emphasized with cooperative learning include sharing materials, ideas and praising. Extraordinary achievement comes from a cooperative group, not from the individualistic or

competitive efforts of an isolated individual (Johnson et al., 1993). An example of an Internet project using cooperative learning, is recording the PH of all the rivers in northern Illinois. Each school district would test their local rivers. This information would then be compiled on a Web Page on the Internet for the World to see.

Joyce (1992) states that Carl Roger's model for nondirective teaching method will assist students in attaining greater personal integration, effectiveness, and realistic self-appraisal. A related goal is to create a learning environment conductive to the process of stimulating, examining, and the evaluation of new perceptions. The teacher acts as a facilitator in Roger's model (Johnson et al., 1993). A good example of nondirected learning on the Internet, is when two students were browsing on NASA's homepage. They clicked on the weather site and continued 'surfing' until they eventually ended on today's weather satellite of the Midwestern United States. It showed a storm system crossing our state. The students proceeded looking for other storm systems both in the U.S. and around the world. They also were fascinated to find these same weather photos used by the local and national weather t.v. stations.

Teacher Benefits

Schmuck et al. (1992) states, " that school improvement requires changes in

the way administrators, teachers and students work together". Working on the Internet fits quit well with Schmucks' belief that friendship and class cohesiveness through grouping can create learning environments both academically and socially.

According to Mr. Geoff Millar, of Geelong College, life is moving on from the computer room relying on one computer teacher. He believes people are changing their view from the computer being an object you learn about to the view that computers are another tool in learning. Computer rooms will not vanish, you can still learn about computers as objects, but new buzzwords will now include 'interactive multimedia', 'computer conferencing', and 'accessing' information from the world's best libraries (Richards,1994).

Cognitive or academic learning environments are enhanced through grouping on the computer for Internet projects.Some say its our responsibility as teachers to provide the necessary network infrastructure for our students as inheritors of the Information Age. Using the Internet, the largest of all networks, is allowing us to improve formal education, while breaking down barriers to world class, lifelong learning. Internet offers students a position of power and personal initiative. They can define problems, gather data, communicate with people previously inaccessible and produce creative representations of their learning. They are in control of a highly sophisticated method of synthesizing what they learn. It's brain work (Morasch, 1996).

American consultant, Gary Stager, feels computers at school should be aiming to teach those parts of the brain-previously numbed by memory tables. At

their best computers point out the discrepancy between real learning and what schools want to teach. "If a kid doesn't learn something from a teacher, they are unlikely to learn it from a computer" (Richards, 1994, p.35).

The Internet allows many opportunities for social learning environments to flourish. Teachers need to educate the student to go out into the pluralistic world as adults and make a living in competition with others. Teachers need to not only teach the life-styles of a culture, but also the problems cultural groups face in gaining a fair share of economic power (Banks, 1993).

I believe teachers who use the Internet are teaching not for tests but for life. For, through Internet, children can begin to develop a sense of their humanness. They can develop new insight into the behavior of others and themselves.

Internet brings the world into the classroom in a way never before imagined by students or teachers. "The teachers' use of technology has had a direct impact on the students, who are using the technology as their teachers use it. We will continue to research the effects on students. Meanwhile, we do know that technology has been a leveling factor that brought together people from all over the district - including students - to work toward a common goal" (Murphy, 1996, p.56).

Hopefully, lines of demarcation between home and school, between the information-rich world outside the classroom and the information-poor environment inside, will largely disappear thanks to the telecommunication

technology (West, 1995).

Making learning personal is an important tactic with far-reaching potential. Maybe, if this generation of students can get to know people, some of the barriers in the world will dissolve (Connor, 1996).

Society is asking extraordinary things of teachers today; from taking care of kids from dysfunctional homes to taking care of kids with alcohol and drug problems (Armstrong, 1994). (Perhaps new technology is an answer for a new problem?)

Economic changes are forcing the nation's education system to serve a much more complex market than it has in the past. The system must be prepared to serve people with a complex mixture of backgrounds and learning skills (Kelly, 1990).

The Future

At the same time that educators face unparalleled challenges in school, parents are demanding technology to take a front seat in the classroom. However, this technology takes money and budgets are limited at both the state and local levels.

According to Chairman Reed Hundt of the Federal Communications Commission, "Two-thirds of all Americans at work use a computer and a network.

Virtually no kids do. Or, more accurately, virtually no kids do at school and that isn't right." (West, 1995, p.7) He believes in a simple principle about the superhighway and education. From their individual classrooms, teachers must be able to send and receive faxes, upload and download information from communication satellites, have access to interactive television programming, communicate with parents at home over telephone lines, and join virtual communities of their colleagues on-line. These are the tools that every teacher ought to have, because every business in the country is going to have them (West, 1995).

The Federal role is unclear and the task ahead of it is enormous. Only 12% of the nation's classrooms even have a telephone line, and just 3% are connected to the Internet (Stanfield, 1995).

The O.T.A. figures it would cost $145 billion to realize the Gore-Gingrich dream of putting on every classroom desk a computer that's hooked with the latest high-speed multipurpose connections to the National Information Infrastructure. Even a more realistic target of 100 computers for schools connected to the Internet with less versatile copper wire would cost nearly $8 billion. Fortune 500 companies report that they would spend one-half of their technology budget on training and support. School, however, would spend only 10-15%, if that, and usually only for training in how to use the equipment, not how to teach with it (Stanfield, 1995).

Kathleen Phillips Fulton, a senior policy analyst at O.T.A., feels if the technology is not in the classrooms, it's not going to be conductive to teachers using

it as a regular part of everyday teaching. Even the jazziest state-of-the-art equipment won't do a good job of teaching without the human touch. This technology begs for the human intervention (Stanfield, 1995).

With the right equipment and the right support, students can immerse themselves in multimedia lessons as engaging as any Nintendo game, or sit in on a discussion or a dance recital taking place at a school half a world away. A student writing a research paper can 'surf' for information through a global network of databases, information services, and archives that is staggering in its scope and growing every day. The possibly uses of Internet are infinite. However, teachers still struggle with curriculum integration and this is essential if technology is to become truly an effective educational resource (Lynn, 1995).

Conclusion

My sentiments rest entirely with Rochelle L. Stanfield (1995) who cites that technology-driven education isn't a luxury; within a few years, it will be a necessity to equip students to live and work in the everyday world of the 21st century. That will require politicians to put the taxpayers' money where their rhetoric is (See figure 1). It will also necessitate a top-to-bottom overhaul of virtually every aspect of education. Using the Internet to integrate curriculum is a top-to-bottom overhaul of my teaching style. My aim is to gradually become more the facilitator

and not only the information giver. I want my students to begin learning how to find their own information with me as the guide. Who said change is easy?

WOULD YOU BE WILLING TO SPEND MORE, IF YOU KNEW IT WOULD GO TOWARD BETTER EDUCATION FOR OUR KIDS?
AMERICANS SPEND ENOUGH AS IT IS!
clothing
Little Nuevitas
Chocolates
HOUSE OF USELESS FIGURINES
KIRK

Figure 1.

Chapter III

The Research Project

Setting

The school district that I teach in, is known for high academic standards, excellent teaching staff, great sports programs, a variety of curriculum offerings and keeping abreast in technology. The district is comprised of four buildings. Two elementary buildings, one in a neighboring town, that houses pre-school, kindergarten and first grades. The second building is in Lena and houses grades two through five. Each of these grade levels have four sections with approximately nineteen to twenty-five students in each room. The junior high building is located in Lena across from the high school and contains sixth, seventh and eighth grades. The freshman, sophomore, junior and senior years are spent at the high school in Lena. Each grade level has approximately ninety to one hundred students.

The three story, old brick elementary building that I teach in is located in a rural setting. The community is very involved in our educational system. The local church groups have a hand in our school system. About half of our students come from a two parent home with Mom staying at home. The other half of the families are either two parent homes with both parents working, or from broken homes with only one parent. The motto of the town is, "Lena, a nice place to live". Five

surrounding towns make up the population of the school district. The racial makeup of the Lena Elementary is about 97% caucasian. The remaining 3% is composed of Hawaiian, Indian and Afro-American. Our school district is growing in leaps and bounds because of people moving from the major cities to the country.

My fifth grade classroom consists of twenty-four caucasian, middle class students. I have twelve girls and twelve boys. About one half of the students are from homes with two-parents. The homes of the other half of my students include; single parents, foster parents, divorced parents with a second or third mom or dad, and grandparents. Unfortunately, your average classroom. My students' learning abilities run the gamut from struggling to advanced. I have four students listed as gifted and leave for Language Arts enrichment each day. Another student goes to Chapter One for Reading help and four other students go to Special Education for help with a variety of subjects through out the day. Two of the Special Education students take medication at different times during the day to help with their attention span and conduct. The boys create the loud and outspoken disruptions in my class this year. This is a change for me, usually it is my girls that are the talkative ones. Most of the students participate in outside organizations like: baseball, girl scouts, boy scouts, church groups, dance, tumbling and 4-H. I have eight students that are very much into computers, both at school and home. Exactly half of the students have computers at home to use. This is the class that I will be referring to and quoting through out the paper.

The Study

I am going to implement Internet into my 5th grade curriculum. I believe that technology should be used in schools as a tool for learning, collaboration and curriculum development.

I first problem I discovered was of how to get the students back to the computers on a regular basis. To solve this problem, I rotated the cooperative learning groups to the computers. Following the class schedule and moving from station to station was a breeze for the class. I formed five stations: one for spelling, one for reading, one for journal workbook (outlining for their papers), one at the computers to write their papers and I was the fifth station. A benefit of moving groups from station to station is the number of group work stations could vary according to what else I was teaching in other academic areas. This learning group approach quickly spread to the rest of my day's schedule.

Using the ISBE grant, I planned to implement my study on integrating Internet into my curriculum. The project for our school was the reoccurring flooding of the Pecatonica River and its affects on plant and animal life. I created five groups of six to eight students to work on the Pecatonica grant project. I named these groups: history, plants, animals, water and pollution.

Following is the students' schedule for the Pecatonica project:

1. The first two weeks of February included designing, drawing and hanging a background mural depicting the muddy Pecatonica River. The history

group would gather information by taking a field trip to the county library.

2. The last two weeks of February included selecting, reporting, and making a 3-D replica of a plant native to the Pecatonica River to add to the mural. Two students attended a workshop with me.
3. The first two weeks of March included selecting, reporting, and making a 3-D model of a bird or insect native to the Pecatonica River to add to the mural.
4. The last two weeks of March included selecting, reporting, and making a 3-D model of a fish or water mammal native to the Pecatonica River to hang on the mural.
5. The first two weeks of April included selecting, and making or bringing in an example of pollution in our river. The water and animal groups took a field trip to the river with a conservation officer. The pollution group took their field trip to the river.
6. The middle of April included finishing the mural so that the Chicago six knew what types of plants and animals that are endangered, extirpated or extinct from our area. They could then ask to see those plants and animals and take pictures of them for our web pages project. Our mural will be ready for the night of the academic fair. Six students attended the three-day workshop in Chicago.
7. May included the field trip for the plant and history groups to the

Pecatonica River. Each group had their summary report completed on the web page of Internet.

I integrated this project in the students' other academic studies. In science class, I had saved the plant and animal chapters to use during the project. The history of the river we tied in with our social studies chapters. In English and reading classes, we worked on their reports and wrote them on the computers. The students worked on making their actual 3-D animals and plants during their free time. Visitors easily found the appropriate names of all the plants and animals, because the students always added their animals or plants names to a mural chart. In all, the students did three reports and added five objects to the corner.

Attitude

In watching my class, I observed a variety of attitudes dealing both with the Internet and the integration of the Internet into the curriculum.

From a survey (appendix A) that I gave the class, I found that the students liked computers. The class survey choices were: strongly agree, agree, sometimes, disagree, strongly disagree. The first question asked if they liked working with computers. Sixteen students replied they strongly agreed, while eight choose agree. For the second question, I like working with the Internet computer, twenty-two selected strongly agree and only two choose agree.

In January, I had the class answer this question. What do you think the class would be like without Internet and the computers? Following are a few of their replies.

Derrick wrote, he would hate to right(sic) letters only an(sic) paper and not on computers. But what I lik(sic) about the new computer is that you can see your self on the computer. And that's cool I really lik(sic) the little camira(sic) that can take your picture and you can talk in to the comuter(sic).

Laura wrote, if we didn't have Internet we couldn't learn about different things in the world. I like the movies you can make. I think it's cool to have pen-pals, but instead of writing a letter on paper you can do it on a computer.

Corey wrote, I think we need to use the computer more, so everybody knows how to use it. The computers will help us later on in life. I can't wait until we get on the Internet. I also can't wait until we go to see the Pecatonica River. I also can't wait until the corner mural gets done, its going to look great.

This attitude, they liked working with computers and using the Internet, was very apparent throughout the school year. From my observations, there was rarely a free computer and the Internet computer was always busy.

(Food for thought. See figure 2).

Brain Trust

A particular kindergarten was very progressive, giving children computers to work with. A visiting state official was horrified to find that young children were being subjected to such advanced learning. He ordered that the children be given Erector sets, instead. But the first day the children had the sets, two of them built a computer.

Figure 2.

I also observed excitement in the students when they were finally able to use the Internet technology. In November, the set up of the Internet computer was finally completed. It has: video conferencing, quick-time video, pagemill (needed to make the web pages), and most importantly a modem. The last hookups were made while the students were outside at recess. When the students entered the room and saw themselves on the computer screen, through the video cam, they were hypnotized and couldn't wait to get their hands on the computer.

John said,"Wow, Mrs. Jacobs, are we going to be able to use that?"

Josh added,"How does that computer, show us on the screen?"

Our tech coordinator demonstrated how to make quick-time videos to the whole class. I selected four of my fast computer learners to see the demonstration once more so they would remember and teach it to the class later.

Once these four students had their quick-time videos made and had

demonstrated them to the class, I had the rest of the students standing in line to be next to make their own videos.

Steve asked, "Mrs. Jacobs, can I stay in from recess to work on the Internet computer?" A boy, giving up recess to do work! Be still my heart.

Sarah inquired, "Can I stay after school to work on the Internet computer?" This from a girl that rarely finishes her homework.

"Mrs. Jacobs, I'm done with all my work and there is still 20 minutes left before lunch. Can I use the Internet computer?" John asked.

I explained to my students that the grant allowed me to attend two different workshop/seminars with some students, their excitement continued to grow. I had the class write me a letter as to why I should select them to represent our class and school for these workshops. In appendix B, I've included a few of their letters. Some students went home and typed them out, while others wrote in long hand. Once again, my class amazed me with some unique and original reasons. Their attitudes spoke loud and clear.

Deb wrote, I am a good learner and good at taking notes. I want to learn more about the Pecatonica flooding project. If I am selected I would be a good representative for our school.

Hannah wrote, I really like to help and teach people. I like to go to museums. I also don't run around in museums. Well, I hope your pick me.

John penned, I believe you should pick me for many reasons. I know how to work--- and I won't be crabby or whinny. I have never in my life had an

opportunity like this before. If I get to go I would be honored.

Janelle's letter went like this, It would be nice to be able to represent the Le-Win School District and at the same time gain experience by working with the Internet.

Melissa wrote, I would really enjoy going to the museums and looking at some of the things that we have already learned this year. I hope this could possible improve my science grade seeing things we learned in our science book.

Once the letters were turned in, I agonizingly narrowed it down to these six students: four who earn average grades, one who is a special education student, and one student that earns all A's.

John is one of my loud and outspoken boys, a good worker, very athletic and has a good personality.

Brad is one of the quiet boys who is a good and responsible student and the best athlete in fifth grade.

Melissa is one of my loud girls, that is always in trouble, is on medication, and goes to special education classes. However, she is a very good worker for me and a natural at the computers. It was her effort to reform and cooperate in class that made up my mind to give her a chance.

Laura is at the top of my class for grades in all academic subjects and is very friendly to all students.

Hannah is a quiet girl who likes to please everyone, gets her work done on time, and is the best girl athlete in fifth grade.

Deb is a quiet girl, who works hard and is a good listener.

Once I announced the final six, I was pleased that the rest of the students were excited for the winners. The class congratulated the final six students on being selected, and named them the Chicago Six. That was heart warming to me, because I had struggled for so long on the final picks.

Steve, a student who thought he would be one of the six to go to Chicago joked, "Well, I tried Mrs. Jacobs. Could you tell Josh and me which hotel you are staying in, so we can rent rooms besides yours?" Josh also thought he would be selected. Neither student was, but they were both happy for the six chosen.

Excitement for the Internet was also apparent in writing to our e-mail pals (keypals) in Korea and in Alaska. Nicole replied,"I can't wait to hear back from Korea to find out what kind of food my keypal likes. I wonder what she will think of my hobbies?"

"Mrs. Jacobs, has Alaska written back yet? I am anxious for a pal," asked Janelle. They always reminded me to check our e-mail and were always excited when anyone got a reply because the students usually shared the reply with the class.

Cole said,"You know what Mrs. Jacobs, my keypal is only over in Korea until his dad is out of the service. He used to live in California."

I observed still other attitudes in the students, when I had to make a decision about which of the Chicago Six students would be the lucky ones to attend both workshops. Discussing this problem, about which students to take to both

workshops, with fellow teachers and my husband, did not help me decide who were the best students to select. Finally, one of my colleagues simply said," Let those six students decide who goes to both workshops."

That is just what I did. I explained to the six students that the two-day workshop was going to be the hardest of the two workshops and that they would actually be learning how to work the programs on the Internet computer, while the three-day Chicago trip would be looking behind the Museum's closed doors at the artifacts we would use for our Pecatonica project web pages.

Melissa said,"It would probably be better if two boys or two girls go to the two-day, hard workshop."

Laura added,"Yeah, they would probably work better."

John asked,"If we go to the close one, do we still get to go the Chicagoone?"

Hannah asked,"What will we be doing at the close one again?"

Laura said,"I think John, Melissa or Brad should go, since they work the best on the computers."

After much discussion, the Chicago Six finally decided on sending John and Brad. I asked,"Is this fine with the six of you?"

They all replied,"Yes."

Those six students talked and discussed like little adults and had made an honest and just decision of who should attend both workshops.

I might add the principal's attitude here about the selection of the six going to Chicago. She said,"I am proud of you. You did not select the gifted students

or the best behaved, and you are giving Melissa a chance. Maybe it is the chance she needs. You picked kids that never get selected."

Talking about attitude, I want to mention the attitude and cooperation of the parents and community. I sent a letter to every parent in the school, put an ad on cable TV, and placed a notice in the local newspaper asking for anyone willing to help with our Pecatonica grant. If they had clippings, videos, pictures or stories they would be willing to share with the class about the flooding of the Pecatonica River, to please notify the school. The response was overwhelming. Parents sent in videos, pictures and volunteered their time for story sharing.

One parent called the school office to say," Do you know that there is a special on TV about the flooding of the Mississippi? It airs on Thursday at 2:00. Do you need someone to tape it for the project?"

Another parent called to say,"I heard about the flooding project. There was a report on TV that said the river is flooding, this year, because of the unseasonable warm weather we had in January when it reached 55 degrees. Thought that you might like to know."

I was surprised to see that it was not only the students and myself that were excited about the Internet project on the Pecatonica River, so was the community.

I observed frustration in the students when in May, the classroom was still not completely on-line. We were able to use e-mail and to make our web pages for the Internet about our Pecatonica River project, but the students had not actually surfed the net and the end of school was close. I had finally convinced the district

to hired a specialist to get all the configurations correct on the computer and we were on-line.

Cole's comment,"Wow, Mrs. J, I didn't think you would ever get it working. We are really ready? Can I go first? Ha, Ha."

Corey asked,"Are there enough days left for everyone to get a chance on the Internet?"

Steve wanted to know,"Can we start going back right away today? How long do we get back there?"

An image of Internet and the web to some (Figure 3).

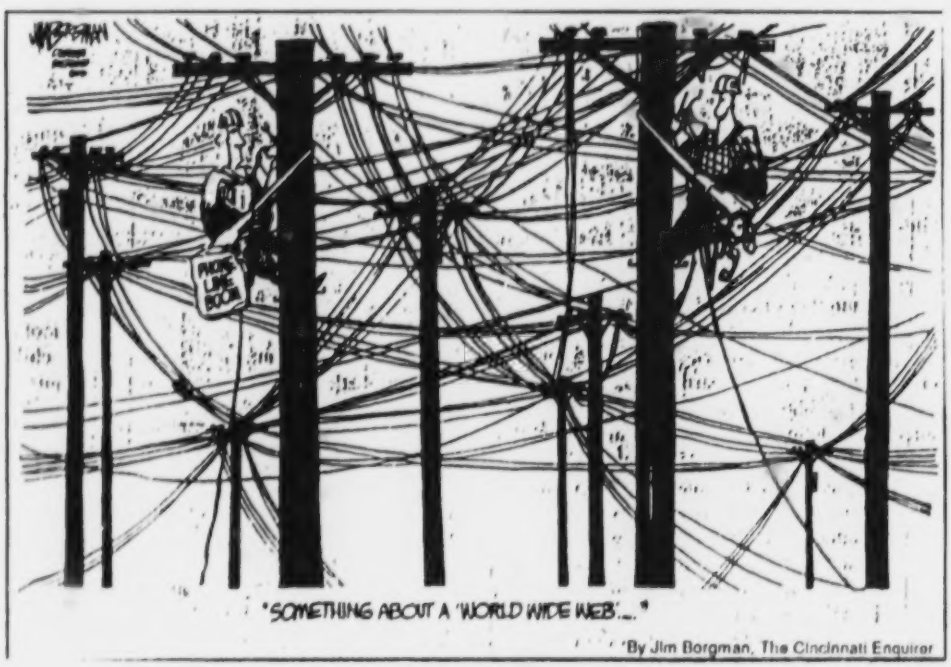


Figure 3.

Motivation

I believe that Internet motivates students. Whether we are exploring animals, space or Shakespeare, learning becomes more creative, more interactive, and more fun using the Internet.

This is what I saw happen in my classroom. In November, when I returned from the first conference about the grant and explained to my class that we were going to be involved in a state Internet grant, they were very motivated and ready to start.

Josh excitedly asked,"You mean the whole world will see our home page? When do we start?"

Hannah added,"My Grandma has a history book of Winslow that talks about the floods. I will bring it in." Hannah did bring the book the next day.

Sarah asked,"What is a Home Page, Mrs. Jacobs? But it sounds neat."

The class went wild, in February, when I told them that six of them were going to Chicago for three days to work on the Pecatonica grant.

Joe asked,"How are you going to decide. I could go if you want volunteers."

Jason added,"I'll ask my mom, but I'm pretty sure that I could go."

Teagan stated very indignantly," Mrs. Jacobs probably will choose the best workers in the classroom. Won't you Mrs. Jacobs?"

Marshall asked,"When are you going to pick the kids, Mrs. J.? Are you going to do it today? Should I see if I can go tonight?"

Chelsea stated,"I always get my homework done, and I promise I will keep doing it, if I get chosen."

It was obvious that the class was both anxious and very motivated to find out how they could be one of the lucky six to go to Chicago. The letter was due in three days. The next day twenty-two letters were turned in to me. In appendix B are some of the completed student letters. Following are a few of the comments I heard when students turned their letter into me:

John said,"I typed mine, Mrs. Jacobs, and I said some pretty neat stuff in it. I hope you like it."

Steve's comment was,"Hey, Mrs. Jacobs, I worked all night on mine. Well, not really, but I worked a long time and I know you will like it."

Melissa spoke,"My mom helped me a little bit, is that O.K? I did the most by myself. I sure would like to go to Chicago, I've been there about a hundred times and I know my way around." This my resource student, who has done everything more times and better than anyone else. She turned out to be one of the six chosen. Sometimes, I wonder about myself.

Brant remarked, "My parents think this would be a great experience for me. Sure hope you pick me."

Josh in a concerned voice said,"I don't know if I can go, Mrs. Jacobs, my dad wants to talk to you about the trip."

Josh's motivation from the day before had plunged because of his parents concern about the trip.

I ended up selecting John, Brad, Hannah, Melissa, Nicole and Deb to represent the class on the two workshops. More description of each student is listed under the attitude section.

The class's motivation continued when we started working on the Pecatonica project. We began to gather our information about the Pecatonica project for the Web page on the Internet. There was much discussion about who would do what animal or what plant that would be found at the river. The students would be reporting and making a 3-D replica of their animal or plant for the class mural. My students were definitely ready to begin.

Jason voiced,"I want to do the snapping turtle. Can somebody else do the same thing?"

Danielle remarked,"When do we get to sign up? Can we start right now? Do you want me to start a paper for the lists?"

Deb asked,"If there is more than one variety, can two people work on them? Like the small mouth bass and the large mouth bass?"

Steve asked," Can Josh and start drawing what the Pecatonica River mural should look like?"

I also observed that a few student's had plenty of motivation, unfortunately, some of it was mis-directed. I had begun to notice a small gathering of Internet groupies that appeared to be glued to the computer and 'hogging' the screen.

"Mrs. Jacobs, will you start a sign up sheet for the Internet computer, cause I never get a chance to get back there?" whined Hannah.

Danielle complained,"When will it be my turn to make a video on the computer, it is always busy?"

Chelsea groaned,"Mrs. Jacobs, those boys are always there. I can never go back, they always get there first."

This problem was easily solved, when I added the Internet computer to the class rotations. With this schedule, everyone had a certain amount of time every two days.

I have found that field trips always seem to motivate my students. It was easy to observe this motivation when the history group returned from their field trip from the county library.

Jason reported,"We got 16 articles! Can I take them home tonight and skim them for information over Easter?" All this excitement from searching through microfilm of newspaper articles and he wanted to do it over Easter. Wow, learning is contagious and amazing to see in action.

Aaron's comment,"I turned the film to help find the articles. It was kinda neat to do." Aaron is reading at a third grade level and not a very easily motivated student. He very rarely talks unless directly spoken to. This remark from Aaron is truly an accomplishment.

Sarah asked,"When does our group get to go to the library? I am ready to start." Sarah is rarely done with her homework, and she is ready to begin her part of the Pecatonica project. Motivation? Finally?

Motivation and success mean different things to different people. The art

teacher, who is part time, had taken my group of seven to the library on a school bus. Her comments about the trip did not coincide with the excitement of the students. "Barb, the library was not ready for us. It was a little tiny room and very hot. They had nothing prepared and there were other people there, too. The door was even locked to get in and out of the room. I couldn't believe it! It was a zoo!"

I relayed the excitement of the students and how they explained to the class about all the information that they found and that they were ready to continue on to the next step. She just smiled and said, "Well, we did find some good articles. And yes, Aaron did seem to enjoy helping Jason. They students divided themselves and worked in three groups. I guess it did go O.K." Here it was apparent that what is motivation and success to one is not always motivation and success to another.

I found that my students had a variety of reasons why they were motivated to use computers and the Internet. I asked them to write a letter (appendix B) to me about what they thought the class would be like without the computers and the Internet.

Hannah wrote, you mean we could be playing a game with a person in a whole other country? I can't wait.

Brad's comment was, I would always get in trouble if we didn't have the computers because I would have everything done and I would be doing nothing. You can draw pictures on the Internet computer and even put words on the people. You can even do puzzles.

Nicole wrote, if we didn't have computers in the room it would really be boring and no fun at all. We can play games that teaches us about like the human body, animal, science and social studies. I find it amazing they think those learning programs are games. Oh well, if it works.

In another survey (appendix A) given to the class at beginning of the year, I asked the question, do you think computers are important to your education? I also asked, do you think computers are important in getting a job? To the first question, I received twenty-three yes replies and one no reply. The students also had to tell why they voted yes or no, and explain why they thought computers were or were not important in education. Following are some of the reasons the students listed.

We can learn how to work them.

We can learn important things on them.

It will help us later to get a job, cause most all jobs use them.

Because it is a way of learning and it is fun.

Kids don't need to wright (sic) always if you have messy wrighters (sic).

People that have a learning disability the computer can help them.

Because computers are nice because you can do homework on it.

The only no reply on the survey listed the following as the reason; No, because kids try to get their work done too fast just so they could get to a computer.

The second survey question, do you think computers are important in getting

a job, received twenty-three yes votes and one no vote. This kind of response confirms, to me, that my students felt computers need to be a part of today's classroom to help them get a job.

I had been waiting all year to see my students motivated when they finally got to surf the Internet.

Laura leaning toward the screen and pointing to words, said to Bill,"What should we click on next? Want to try here or this? Look where we are. We just went from California to New York with just a click and we did it ourselves!" They looked at the web page for the movie, Twister and it had just started playing in theaters.

Corey jumped out of his chair at the computer and shouted,"Mrs. Jacobs, come and look! We have the weather. It's a movie of a storm crossing Illinois. This is neat!"

Josh asked,"Mrs. Jacobs, can we do this? It has a place for us to sign up for fan mail from the Chicago Bulls. We already saw M.J's poster and Rodman's statistics." I said yes, and gave them my e-mail Internet address and by the next day they had received a reply from the Chicago Bulls. Heady stuff for fifth graders.

Janelle declared,"Look Mrs. Jacobs, we are at the White House. What should we do now? Let's try the tour. I wonder should we write to the President?" These were rhetorical questions and had moved on even before I could get over to the computer. They did write to the President and had a reply back the next day.

This is the type of stuff, I knew that would motivate the kids to think about topics and areas that they don't necessarily ponder about.

Life without an Internet address (Figure 4).

Figure 4.

In the morning of the second day that we had the Internet connection working, John showed me a piece of paper and said,"Look Mrs. Jacobs, last night I saw this Internet address on TV. Can I try it?" What motivation. Thinking of school at home while watching TV, what a concept!

I observed that achievement came in many forms: through students' engaged learning, as student teachers, and higher self-esteem.

Engaged learning, to me, means that learning involves real-life tasks. These tasks allow for meaningful learning and collaboration among the students. The teacher is no longer the only one directing the learning. The student starts to take control of his or her learning. This engaged learning by the students was apparent in many situations.

While working on the Pecatonica project, students basically had to use their own judgement about what animals or plants to report on, when to do the report and how to make their replica for the corner mural. In all, each student had to do three reports and five contributions to the mural. There was only one student who did not finish a report or project on time. That in itself, is a major class achievement.

Jason asked,"Is it o.k. if I make some extra canary grasses for the banks? I saw on our field trip to the river that it grows in bigger bunches."

Josh stated,"I think that I will make a male and a female finch for the bushes. Is that o.k.? In my report, I said a lot about both of the sexes."

Jackie wondered,"Could you get me a different color of yellow? According to my information, this flower has at least three different colors of yellow."

Laura asked,"We need something over by the barn, can Hannah and I make a garden or something?"

Derrick asked,"Are these plants o.k. for the mural? I made five because they grow in bunches." Derrick is one of my very low special education students and his plants were marvelous. I had no idea he could be so creative. He added, "We need to make a log or something for the river, because it said in the book that they grow on dead logs."

Joe overheard what Derrick had said and offered,"I'll make the dead logs for the river, how big should they be?"

I said talk to Derrick about the size of his plants and you two decide about the size of the log. The two boys made a very realistic looking log for Derrick's flowers.

Another time that I saw a student engaged in his learning was dealing with our e-mail pals. Tom is one of my students that doesn't listen well. He usually does the assignment his own way, has a happy-go-lucky personality, but is always a step or two behind the class in everything. If Tom learned nothing else this year, he knew when it was time to go to the library, because that is where the e-mail connection was to write to Korea and Alaska.

Tom would remind me every Thursday at 1:40 p.m.,"Mrs. Jacobs, it is library time. I wonder if my keypal has written back?" Tom had finally developed a sense of time.

After returning from the Chicago overnight workshop, Laura, one of the Chicago Six, asked,"Mrs. Jacobs, on Friday, can I teach our class how to play the reindeer game? I thought it was fun and there is a lot of information gained by

playing it." This was a game about how the environment affects the growth or death of the deer population. There are quite a few rules and takes some organizing and explaining, in order to play. I gave her the O.K. and she had everything planned and gathered by the next Friday.

One group, after returning from their trip to the Pecatonica River, presented a very engaging discussion of what they had learned at the river.

Brad started the talk with,"We learned about how the river can affect the birds of prey around here."

Chelsea chimed in,"Yeah, like the Bald Eagles were eating the fish and the fish had chemicals in them that affected the eagles eggs."

Cole added,"Then the egg shells got too brittle somehow and so they broke and that means no babies. That is why the Bald Eagles are on the endangered list."

Danielle said,"We also learned about why the Pecatonica River is so brown. The soil erosion from the rain and wind carries the top soil to the river."

Corey added,"Yes, but it is mostly the rain that does the most damage. The man called it some special name when the raindrops actually hit the soil."

Chelsea interjected here,"I have it right here in my notes, yes, it is called detachment. That's when the rain hits the soil and knocks it loose so that it gets transported into the river."

This conversation continued on and sounded very scientific.

During an interviewing session, I had still another occasion to observe a student get engaged in his learning. Some members of the community, who had

experienced first-hand the flooding of the Pecatonica River, had volunteered to come in for an interview. One of the adults had mentioned that flooded roads and highways usually have barricades placed across the roads, but sometimes people go around the barricades and end up getting stranded in the middle of swiftly moving water.

Brad, one of the interviewing students, reported back to class about these people going around the barricades. He however, did not stop with just the information that was given at the interview. He added,"It is dangerous and also against the law to go around barricades. Don't be a wise guy cause you could get killed by the rushing water if you are stranded on top of your car. I saw it happen on 911. Also around here you could get frostbite cause it is so cold. So be careful around flooded roads." The whole time Brad talked, the class listened carefully. Brad is one of the quiet ones in the room. He had both the class's and my attention.

Internet use altered the roles of teachers and students (Peha, 1995). The best example was with John and Brad, the two boys that had been selected to attend both Pecatonica grant workshops. At the first workshop, I told them that they, not I, were going to be the teachers to the classroom when we returned. They would need to demonstrate the program and then teach each person in the room how to make their own Quicktime videos.

In our class rotations, I simply had John or Brad take my spot as the teacher. Every twenty minutes, John or Brad demonstrated how to make the

Quicktime videos to another group of four. One of them, then supervised those students while they made their videos, and remained available to answer any questions that group might have. This procedure worked well, and everyone was eager for their rotation to reach the boys' demonstrations.

Another time during inside recess, John was playing a board game with some boys. Melissa, a know-it-all, was having difficulties trying to make a Quicktime video. She said, "Mrs.Jacobs, I don't know what I am doing wrong." I replied why don't you ask John or Brad. She did and John actually, quit the game with the boys and came over, sat down and said,"Well, you go over here and show . . ." A new role for both students; for Melissa to listen and agree with someone, and for John to help her. Once a few of the students had their videos completed, they also volunteered to help the rest of the class.

A teacher's goal is to help students understand their own needs and values so that they can direct their own educational decisions (Joyce 1992). Seeing a student develop self-esteem was a rewarding experience for me. Melissa, one of my Special Education students, found self-esteem and blossomed. As I had mentioned earlier, Melissa was a natural at the computer and also had one at home. However, her social skills were next to nil. She did not enjoy taking turns or sharing. During the course of the school year, Melissa changed from her unsocialable self, to a helper and even on occasion to a teacher. Eventually, she also was invited to join in group activities outside of the classroom. I attribute these changes to the Internet. When Melissa learned the new programs, she shared

her knowledge. Melissa often said, "I'll show them how to make their videos," or "I'll help them get their web page started." And she beamed. When the class or Melissa could not figure out how to work something correctly, she went home, experimented with her home computer and more times than not, came back to school the next day and showed the class how to work out the problem. She would always shout,"I figured out what we did wrong yesterday. I told you that I would be able to figure it out. Want me to show you now?" And she beamed. On busy days, in the classroom, when I could not answer all the students' questions about their Internet Web pages, I would say ask someone who already had their Web page finished. By the end of the year, students were actually asking Melissa, a special education student for help. And she beamed. (Student teacher photos Figures 5 and 6).

Figure 5.

Figure 6.

Cooperative Learning

My definition of cooperative learning is students working together to accomplish shared goals. Within cooperative activities my students seek outcomes that are beneficial to themselves and beneficial to all other group members. I believe extraordinary achievement comes from a cooperative group (Johnson et al.,1993). The students learned when it was appropriate to compete or work individually and when to cooperate. The entire Pecatonica River flooding project was a cooperative venture. The students needed to work, at times, in pairs, in small groups, in large groups and alone. I observed the students using the following cooperative learning skills: suggesting how to do something to classmates, giving

ideas to their groups, asking someone for his or her ideas or feelings, building on someone else's ideas or feelings and showing that they were listening to a group member (Schmuck et al., 1992, p.6). Using cooperative learning methods helped us attain our goal of completing this Internet project.

Once the Internet hook up was completed, Joe suggested,"Look Mrs. Jacobs, in my magazine I found Ken Griffy, Jr.'s Web address. Maybe the next time back to the computers, can we have different partners, like someone who wants to know about Ken Griffy?"

Laura was giving ideas to Bill, while on-line, and said,"I think you need to add '.com' to get to the Disney address."

Nicole showed that she was listening to Marshall, when he wasn't able to get to a web site. She pointed out,"Look, it is right here. Try on this page." A couple of minutes later she added,"Have you found one yet?"

Chelsea was having difficulty finding out where the reed canary grass came from. Cole for one reason or another knew the answer and simply said, "The people from England brought it over."

While the students selected plants and animals for their reports and the mural (figure 7), often I heard comment similar to these, that demonstrated working together cooperatively.

Hannah asked, "Are you sure that animal is in northwest Illinois? Here let me help you check the in the book?"

Cole questioned Joe, "Are you going to do both male and female muskrat?

If not, is it o.k., if I do one?"

Figure 7.

Josh asked Aaron, "I never knew that the bunting ate those things. What else does the bunting do? What book did you find it in?"

John told Brad, "Hey dude, that is a cool looking fish. What is it called? Have you ever caught one fishing?"

The few days that the students were able to surf the net, I saw many examples of students building on someone else's idea.

Teagan was surfing to find information about the movie Babe, when Danielle suggested, "Let's find out if there are facts about other animal movies. Should we try Universal, and then MGM?"

In a tour at the White House, Janelle said,"This is neat being at the White

House. I wonder if we can go on different types of tours in the United States?" Nicole added,"I bet we can. Let's try to see if we can see Mt. Rushmore?" Janelle said,"Yes, and what about the Statue of Liberty?" These two went on and on with ideas.

Students, showing they were listening, was a daily occurrence while working on this Internet project. One instance that comes to mind occurred when a college student, Ehren, was helping me demonstrate the Internet's capabilities to the class. He discovered a lot of neat programs on the computer, that I was not using, so he showed the class. Each and every student was either sitting on the edge of their chair, or standing on top of their chair to get a better look.

Steve asked Ehren," Can you show us that again? You went too fast."

John questioned, "How did you do that,man? Will you do it again?"

Melissa asked,"Can you change the color on the background? What about the type of printing, can that change, too?"

Steve asked Ehren, "How did you get to this program, once you logged on?" Ehren replied, "That is a good question. I am glad that you asked it." Steve beamed with pride for asking the question.

Peer Reflection

I have found that pioneering new programs, in any field, draws attention

from a variety of people: parents, colleagues, the school board and the students. Most of this attention is curiosity, and sincere interest to learn more about the new program. Thankfully, some of the people also give support and words of praise for tackling such new feats.

Mrs. Jones popped into my class after her math class was over and excitedly said, "Can I write a letter to go to Chicago, too? All that I heard the first five minutes of math class was that six lucky students were going to Chicago with you and all they have to do is write a letter to you. Well, I want to go,too." She added that the students were definitely excited over the project and the workshops. You only had to look at their faces and listen, to hear the whole story.

Mrs. Smith, with her curiosity about the Pecatonica project, asked,"Tell me more about your project, Barb. I would like to hear about it. Would you be willing to let my gifted classes help in some way? If you think of a way, please let me know." I did include Mrs. Smith's classes. Her class formed a group that studied how animal life below the soil was affected by flooding. Three of the four field trips were a result from having the county soil and conservation officer come to speak. Mrs. Smith was responsible for arranging this speaker. She also arranged for the county soil and conservation officer's presentation to be aired on our local cable TV channel. Mrs. Smith was a great asset, to me, on this Internet project.

Mrs. Smith's comment at the end of the year was, "I'm excited to have been a part of something this great!" Her honesty and enthusiasm, I took as a compliment for a successful project.

My principal asked, "Hey Barb, I would like you to present at the county institute this fall. I think we need to demonstrate and show the other schools and teachers the possibilities of Internet in the classroom. This Pecatonica project was a success and you should be proud and show it off." This certainly would be great place and time to disseminate the technology.

During a local institute concerning Internet in the classroom, the speaker was made aware of the state grant that I had received. We then discussed the Pecatonica project in front of the teachers of the district. (Our district does not communicate well between buildings, so one building usually does not know what is happening in another). After the session was over, two high school teachers approached me with all kinds of questions.

Mr. White asked, "Do you suppose that you could get me a copy of the letter to get signed up for the state's free e-mail address, and the free 800 telephone number?" I did get the information to him.

Mr. Johnson said, "If you ever need any help on the grant project, let me know. I do know my way around computers if you need something special done on the computers. I would also like to see your video-conferencing setup." We did meet on a couple of occasions.

In Beloit, at a workshop that I needed to attend for my Master's program, Judy (director?) handed an article to me and said, "Here, Barb, I thought that this might be helpful for your Internet paper. Your paper will be real cutting edge." I took her comment and the article as a compliment.

A fellow colleague asked, "Barb, my class is working on a multi-media presentation using Linkway, for their social studies reports. You said that your kids use Linkway all the time. Could you sometime, have your class help and demonstrate to my class? I know that you are busy with this grant, but you know the computers so well. Think about it and let me know." I did think about it and I simply did not have time. I suggested, "Last year, Mrs. Blum got very good at Linkway with her students. Why don't you ask her. I'll say something to her, so she has time to think about it."The two classes did get together with much success. More dissemination. Yes!

Ms. Stamm, the art teacher and a friend, was most helpful throughout the Pecatonica Project. Originally, the state grant was thought to be connected to art because of the affiliation with museums. However, we quickly discovered it was not.

Ms. Stamm told me, "Barb, I am only staying involved because of our friendship. This grant has nothing to do with art." I appreciated her comment and took advantage of her offer to help. When I needed to create parent letters or surveys, she was there. When I needed a critical eye for my tentative schedule, she appraised. When I needed assistance expanding the Pecatonica project to include forty-two students, she helped.

She said," Barb, these groups will be perfect. Look, the plant group can work on why some plants grow well in the flood areas and then find why some plants are not there now. The museum can help us find out what plants are native

and are no longer here. The animal group can do the same thing." We went on to discuss the history and pollution groups.

When I needed her support to carry on what seemed an enormous, unachievable task, she said, "I don't know where you get your energy. When do you do all this planning and still teach? Barb, I honestly, don't know how you do this. I know that I couldn't."

Another colleague, Mrs. Willard expressed her appreciation, "I would like you to know that I, for one, appreciate all time you spend in trying new projects. I am anxious to learn, but I need to see someone else work it out first. Then, I will be more willing to try something new. Thank you."

My colleague next door, is most definitely my main source of encouragement. Without her constant smiles, good words and comments like these, the project would have been truly unbearable:

"Barb, this is only my first year with computers in my classroom, and I can't even image doing all the things you do over in your room. Where do find the strength?"

"Barb, how did you go about scheduling the students to rotate back to the computers. I have the chart, but how did you integrate reading, spelling and English? This is as difficult as I thought it would be."

"Barb, how can you do all these things at once. Let me see, you are: writing chapter two for your Master's class, taking copious field notes for chapter three in your master's program, making lesson plans for this Pecatonica project, creating a

3-D mural in your classroom, chairing a committee for the district technology plan, organizing track and field day for the whole school, planning for the Pecatonica field trips, sending out parent surveys and letters, gathering people to come in for a Pecatonica flooding interview, taking six students to Chicago for two nights, preparing substitute notes, hoping the secretary can find a sub who knows how to do a technology classroom, find some time with your family, and let me see, did I forget something? Oh yeah, you are still teaching your class and are farther ahead in most areas than I am. Go figure!"

"Barb, you amaze me with all your organization. You have, however many things going on all at once, and your students know what they are to do. Keep up the good job."

She always knew when I needed a talking to and that I should be slowing down or saying no a bit more often than I do. She also knew when I needed an ear to just listen, with no real expectations of a reply. This lady was definitely my rock of support.

I found that there are always a few people who do not like change, unless it is their idea. I did hear occasional negative comments.

A colleague whispered loudly, "Why is it always Barb, that gets the new equipment? How come newspapers never do a story about our classrooms?"

Another teacher casually mentioned, "I would try some of these new things, if someone would ask me."

For the most part, my colleagues were supportive and kept abreast of what

was happening in my room.

Summary

I have been told time and time again, that I am not a conventional teacher. That therefore, made me an unconventional teacher. An unconventional teacher can be described in many ways, but the first word which comes to mind is 'enthusiastic'. I've found that unconventional teachers love to teach. We don't like to walk in and lecture day after day. Instead, we relish the chance to actively teach exciting and entertaining lessons, involving the students in active learning. We don't follow any particular educational theory or guru. We do not claim to be experts. We do the best that we can using any available resource; sometimes flying by the seat of our pants. There is no particular age to an unconventional teacher. I've discovered, that what unconventional teachers do share is a passion for teaching, a love of kids, and a will to be different.

When I see Internet addresses displayed prominently in advertisement, on TV, and in magazines, I wonder if people are thinking what's up - and what might I be missing. Hopefully, it is the same feeling that people had at the turn of the century when the telephone became popular in the United States. Ironically, it was only this year, 119 years after the telephone was invented, that I finally got a phone connection in my classroom. But, I can already see, that it is not going to take

education 119 years to get involved in the superhighways. Winning this grant, confirms that the state, the school board and I are all on the right track, which is integrating Internet into the curriculum.

In my classroom, I created a psychologically safe environment, giving all my students, from special education to gifted, room to grow individually according to their own learning styles. I needed the ideal teaching tool that focused on the changing needs of two people - the students and me. I maintain, Internet was that latest instrument: a tool that not only provided students with individualized and cooperative learning, but also allowed them to problem solve in everyday life by using thinking skills. Because I created a safe classroom and used this teaching tool, the achievement was outstanding!

I think integrating Internet into the classroom made my students more ready for the world of today and tomorrow. Today's students have tougher requirements in school than ever before. They need to think critically and strategically to solve problems. Students must learn in a rapidly changing environment. They need to build their knowledge from numerous sources and different perspectives. Internet helped them understand systems in various contexts, and helped them to collaborate in the classroom and around the globe. These methods contrasted sharply with the separate, low-level skills, content and assessment methods traditionally taught in schools. Instruction that assumes the teacher is the information giver and the student a passive recipient is becoming outdated. I believe:

If you tell me I will listen

If you involve me I will learn

The use of computers and the Internet actively involved my students. They decided what site to hop to next, which Web site yielded more information and where to surf for still other possible answers. So much of what we teach in school is concerned with facts and the Internet contains up-to-date facts on just about every topic imaginable.

Yes, we are still at the ooh and aah stage of Internet in the classroom, but the bottom line is that my students were reading to learn, and they decided the direction to take for that learning. The children enjoyed finding answers themselves. Their interest was captured by the screen. Internet truly involved my students and helped them learn.

Internet is not as tidy or as user friendly as we teachers might like, but it is both real and here to stay. It remains for us and our students to create the learning. I believe, this electronic networking on the Internet is a link to creating the schools of the future. Teachers need to let Internet become a part of their teaching repertoire. It can help reach those difficult to reach students. If e-mail to Japan, is the right thing to do with a student, do it. If exploring the Yukon in Alaska, is the right thing to do, do it. Whatever works. Internet expands students' and teachers' horizons, offering immediate interaction. Internet accommodates real-time research and eliminates the frustration of waiting for hard-bound volumes. Glasser (1992) states by introducing more need-satisfying classes, we

should be able to persuade most low performers to start doing much more in school and to gain the confidence to attempt to do quality work.

Some benefits, that I gained, from doing this project are; it forced me to take time, to observe and to listen to my students' successes as the Pecatonica project progressed. I also saw self-esteem, nurturing, and social skills develop in my students. They became effective communicators, worked and played cooperatively, and used decision-making throughout the year. One of the most satisfying things to see was the interaction between the students after the first few weeks of the Pecatonica project. The competitiveness between students was no longer there. Everyone realized that each person had certain skills and jobs to do and quickly linked up with those students as needed. Cooperative learning turned out to be my answer for how I was to implement Internet in my classroom. The Pecatonica project was rewarding for both the students and myself.

Another benefit of this project, I observed, was that the students practiced and developed sound communication skills: by involving the community, by building support for the school and the project, and by responding effectively to parents.

Parental involvement turned out to be an unexpected benefit of this project. I found that when parents have access to this technology at home or work, they can become more closely involved in their child's education. The advantages and avenues of this resource can be tremendous.

Chapter two, surprisingly, offered another benefit for me. Reading the

literature on teaching styles, new programs, technology and about the Internet, confirmed my commitment to technology in my classroom. My approach to use cooperative groups and engaged learning to implement Internet into my curriculum, was reinforced time and time again. Authors and educational gurus, in books and articles, supported and justified what I was doing in the classroom. More often than not, you could see a smile cross my face as I read these articles. I had a question about one article that I quoted from Gary Stager. Since I had attended one of his seminars and had his e-mail address, I wrote him. He replied on-line from Australia with the answer to my question. He also gave me the names of more articles to use for resources. Internet allows for amazing exchanges.
I found that I am not alone in my successes, frustrations and failures to implement these new technologies. There are hundreds of other teachers who are also pioneering Internet into their curriculums and school districts. I truly believe, we are pioneers in the school of the future.

Three crucial people, to me, during this year's Pecatonica project were: my husband, my next door colleague at school and my principal. The project, simply, could not have been as successful as it was, without each of them. Because they are what helped me keep my sanity. They also encouraged me weekly and sometimes daily, that I was doing a good job and on the right track. I have always believed that creative and great teachers are not born, they are created by the teacher next door. There is more truth in that statement, than a lot of people know. Support from your peers during a time of new discovery is a necessity.

Remember, when you pilot something new, you have more eyes on you than you ever believed possible. Parents, teachers and of course the school board watched eagerly for my successes and some (sadly) for my failures.

Yes, there were frustrations. Not all experiences have been as smooth or as successful as I would have liked.

There were bumpy roads in this technological revolution,

mine included:

1. "Please try again later, that line is busy."
2. Web sites that are too busy.
3. Students not always amazed at what I am amazed at.
4. I was to do all this new lesson planning, when?
5. The state unorganized, and very slow in correspondence about the next steps to be accomplished.
6. So many obstacles, with the programs and equipment, that could not be taken care of at my end.
7. Waiting on other people: to get the wiring done, the modem hooked up and the configurations just right.
8. The state needs to change their order of plan. First get the equipment and then train the people. Not vice a versa.
9. Some students became Internet hogs. A problem I had not foreseen.
10. Some days, I had an negative attitude because of all the delays. These

frustrations were, occasionally, vented at the students.

At one point in the year, the students' enthusiasms were too much. I had the following questions directed at me all at one time:

"Mrs. Jacobs, can I write my poem on the computer?"

"Is it O.K. to use the information finder on the computer to look up about Thomas Paine?"

"Come look what I drew across, Danielle's face on the computer?"

"Mrs. Jacobs, did you see what Steve drew on my face back at the computer? I don't think that was very nice."

"Can I start to write back to my e-mail pal?"

" Mrs. J., where is the book of birds?"

I caught myself ready to say no to all of them, you can't do that, thinking about how that type of drawing is not what the computer was intended for, and that there were just too many things going on at one time. You know, they were having fun learning. But, perhaps because I wanted to see the mustache on Danielle, I said, "Sure, I will come and see it." (It was a nice mustache by the way.) This type of interactive, focused and engaged learning, is just what I had been trying to achieve. The students most definitely adjusted more quickly than I did to this type of a classroom.

It's obvious that there are many ways to use Internet for educational experiences. What we are really doing, day by day, is inventing the elementary school of the future. This future school rests within each institution. Things will

change. There will be new models of assessments, broader views of literacy and higher standards. The day will come that instead of struggling to remain informed on slim school budgets, we are going to be forced to fit all of this wonderful new information into only nine months! Such an effort requires a major commitment of resources and professional energies, as well as an ample measure of patience. The Internet can be an overwhelming place, but if you start by focusing on a single application or area of interest, you can ease in slowly.

When you get up and running on your Internet connection come visit our Home page at http://www.chias.org/ Look for the museum schools and then Lena, Illinois.

I heard someone say that teaching is entering the Era of 3C's: confusion, conflict and change. This Era is going to require a prepared mind and I am ready.

The Future

Teachers relax, in no way is the computer a substitute for great teachers. Computer learning can only work by involving teachers. I maintain that, teachers are not paid to teach. They are paid to have students learn! And students learn by doing. We teachers need to figuring out how can we get more individual contact in a school day, while using the computers to pass on knowledge and to let students explore in their own directions.

Technology has revolutionized the workplace, and the PC is becoming as common a home appliance as the television set. Now it's time for our nation's school children to reap the benefits of learning with technology. I feel the single most important use of technology is to improve education.

The use of Internet is the first major on-ramp to the Information Superhighway for many users in the global community. In schools, however, navigating the Internet to achieve instructional value requires that more than just technical capabilities be addressed. Schools and teachers need to consider: teaching strategies, lesson plans, appropriate polices for use, staff training and the unlimited resources as parts of an Internet Plan for your school.

What are my plans for the future? What would I do differently next time? These are questions that I am now able to critically think about. I would like to try to do the following next year:

1. I have been compiling a list of hot Web sites to explore.
2. I want to familiarize myself with video conferencing between, so next fall I will be ready to implement 'virtual conferences' with other schools
3. I want to develop lessons plans that would integrate Quicktime videos.
4. I need to develop some type of network etiquette, since the students are interacting with a global audience.
5. I want to investigate more about audio conferencing.

6. I need to take time and search and find on the Internet lesson plans that others have already successfully used.
7. I want to explore the possibility of learning another language on the Internet.
8. I want to concentrate more on being a facilitator. Still responsible for the students' learning, but rather than being the dispenser of information, I want to be the one who guides the learning process.
9. I need to have more patience with the things that I have no control over.
10. I need to use student portfolios more effectively and routinely.

If I had the power, there is only one thing that I would change about the process that I used to incorporate Internet into my curriculum; time. There needs to be time given for developing lesson plans, and I do not mean one or two days. When a new program is being created and implemented, a teacher needs time to plan weekly or at least monthly.

I theorize, that the success of Internet will take a combination of technical service, trust, understanding the school's special requirements, plus planning for the future, to ultimately equal the formula for triumph in schools.

We need to remember that change is a process, not an event. Change is made by individuals first, then institutions.

References

Armstrong, L., Cuneo, A., & Yang, D. J. (1994, February). The Learning revolution: Technology is reshaping education-at-home and at school. Business Week, pp. 80-88.

Banks, James A., and Cherry A. McGee Banks (1993). Multicultural Education. Massachusetts: Allyn and Bacon.

Black, Susan (1993, Nov.). They Do It Their Way. The Executive Educator,15(11), pp. 21-24.

Butler, Kathleen (1988, Nov./Dec.). How Kids Learn: What Theorists Say. Learning, pp. 3-34.

Conner, Kameron (1996, March/April). "Koalaty" Learning. Networking & The Internet, p. 4.

Croal, N'Gai and Adam Rogers (1995, Nov.13). Now for Some HotJava. Newsweek, pp. 21-22.

Dewey, John (1943). The School & Society - The Child and the Curriculum. Chicago & London: The University of Chicago Press.

D'Ignazio, Fred (1992, Nov./Dec.). Getting a Jump on the Future. Electronic Learning, pp. 28-31.

Glasser, William (1992). The Quality School: Managing Students without Coercion. New York, New York: Harper Collins Publishers.

Golubich, Jim (1996, Mar./April). One Teacher's Tour(of the World Wide Web). Networking & The Internet, p.7.

Hagopian, Ruth (1995, Sept./Oct.). www.fine.are.online. Mac/Chicago, pp. 18-25.

Hertzberg, Lanny (1995, Oct.). Every Educator's WWW. Electronic Learning, pp. 48-51.

Holland, Holly (1996, Jan./Feb.). Whither School Reform? Electronic Learning, pp. 35-44.

Johnson, D., Johnson, R.T., and Johnson, Holubec, E. (1993). Circles of Learning Cooperation in the Classroom. Edina, Minnesota: Interaction Book Company.

Johnson, Stanley (1996, March/April). Going Online. Networking & The Internet, p.4.

Joyce, B., Weil, M., & Showers, B. (1992). Models of Teaching. Boston: Allyn & Bacon.

Kantor, Andrew (1994, March 15). Making On-Line Services Work for You. PC Magazine, pp. 111+.

Kelly, H. (1990, August). Technology and the transformation of american education. T.H.E. Journal, pp.60-63.

Kawasaki, Guy (1992, May). Let the Quick Times Roll. MacUser, p.25.

Lynn, Leon (1995, Summer). Computers and Equity. Rethinking Schools, pp. 16-17.

Morasch, Al (1996, March/April). How Students Benefit. Networking & The Internet, pp. 2-3.

Murphy, Michael and Miller, A. (1996, March). Incentives Pay Off in Technological Literacy. Educational Leadership, 53(6), pp. 54-55.

Palincsar, A., and Klenk, L. (1991). Teaching Advanced Skills to At-risk Students. San Francisco: Jossey-Bass.

Peha, Jon M. (1995, Oct.). How K-12 Teachers are Using Computer Networks. Educational Leadership, 53(2), pp. 18-25.

Polin, Linda (1992, Nov.). Opening Up Books "Text: the Next Frontier". Cue Newsletter, pp. 20-27.

Richards, Christopher (1994, Oct.). At the High-Tech Crossroads. Education Age, pp. 34-35.

Schmuck, R.A., & Schmuck, P.A. (1992). Group Processes in the Classroom. Dubuque: Brown.

Slavin, R., Sharon, S., Kagan, S. Hertz-Lazarowitz, R., Webb, C., and Schmuck, R. (1985). Learning to Cooperate, Cooperating to Learn. New York: Plenum.

Snyder, Tom (1990, Fall/Winter). True School Success Stories. The Professional Teacher, pp. 3-4.

Stanfield, Rochelle L. (1995, July). Connected Classrooms. National Journal, pp. 1885-1889.

Valauskas, E. (1993, July). Education Online: K-12 Computing, Online, pp.89-91.

Viadero, Debra (1996, Jan.17). Mix and Match. Education Week, pp. 27-30.

Weld, Jeffrey (1996, March). Science Online. Educational Leadership, 53(6), p. 86.

West, Peter (1995, Jan.11). Logged On For Learning. Special Report/Education Week, pp. 1-28.

Appendix A

Surveys

STUDENT HISTORY

Name_____

1. Parents name: Dad _____ Married? yes no

Mom _____ if no, are they with someone else?_____

2. Parent's schooling: Parent's jobs

Dad _____ _____

Mom _____ _____

3. Number of brothers: _____
sisters : _____
half or step: _____

4. How many people live at your home during the week? (count yourself) _____

5. Who helps you the most with you homework? _____

6. Do you plan to finish high school? yes no

7. Do you plan on attending college? yes no

8. Do you plan on attending trade or technical school? yes no

9. Do you think education is important? yes no

10. Do you think you are doing your best in school? yes no

11. If you answered no to no. 10 - Why?_____

_____

12. Do your parents use a computer at their job? alot some none

13. Do you think your parents think computers are important for education and jobs? yes no

14. Do you think computers are important to education? yes no

15. Do you think computers are important to getting a job? yes no

16. Do your parents know how to use internet? yes no

17. Do you think you know more about internet than your parents?

yes no

COMPUTER SURVEY

Name of Teacher_____

	Strongly Agree	Agree	Sometimes	Disagree	Strongly Disagree
1. I like working on computers.	_____	_____	_____	_____	_____
2. I like working with the Internet computer.	_____	_____	_____	_____	_____
3. When I get free time at the computer, I usually write paragraphs, stories or letters.	_____	_____	_____	_____	_____

Please tell what class you are writing the letters, stories or paragraphs for._____

_____

4. I feel the class would be boring without computers.	_____	_____	_____	_____	_____

Please tell what you would be doing on the computers, that you think is not boring._____

_____

5. When I get free time, I like to use the Internet computer.	_____	_____	_____	_____	_____

Please tell what you like to do best on this computer?_____

_____

6. I like the idea of e-mail penpals.	_____	_____	_____	_____	_____
7. I wish all students could e-mail.	_____	_____	_____	_____	_____
8. Talking to other classes on the Internet, is a good way to learn.	_____	_____	_____	_____	_____

What kinds of questions should we ask the other classrooms?_____

_____

9. Internet is a good way to learn._____ _____ _____ _____ _____

10. I would rather learn about Social studies on the Internet, than the text. _____ _____ _____ _____ _____

Please tell why you feel, the Internet learning will be better.

_____

11. I would rather be at the Internet computer with a partner. _____ _____ _____ _____ _____

Please tell me why you would or wouldn't want to be with a partner._____

12. I feel the Accelerated Reader program is good. _____ _____ _____ _____ _____

13. I read more because of the Accel. Reader Program. _____ _____ _____ _____ _____

14. I would rather write papers on a computer than with pencil. _____ _____ _____ _____ _____

15. Computers have helped me become a better writer. _____ _____ _____ _____ _____

16. I like to use stations to complete a project on the computer. _____ _____ _____ _____ _____

17. I like to work in groups on projects. _____ _____ _____ _____ _____

18. I talk about what I do on the computers at home. ___ _____ _____ _____ _____

Please tell me which computer programs you talk about._____

_____

	Strongly Agree	Agree	Sometimes	Disagree	Strongly disagree
19. I know more about computers this year than last year.	_____	_____	_____	_____	_____
20. I have a computer at home.	_____	_____	_____	_____	_____
21. I like other students to teach me on the computer.	_____	_____	_____	_____	_____
22. I would like the chance to be the teacher at the computers.	_____	_____	_____	_____	_____
23. I think girls are better than boys on computers.	_____	_____	_____	_____	_____
24. I think women are better than men on the computer.	_____	_____	_____	_____	_____
25. I think video conferencing will be great.	_____	_____	_____	_____	_____
26. I would like to know more about foreign students.	_____	_____	_____	_____	_____
27. I'd rather talk to someone on the Internet about a project,than look it up.	_____	_____	_____	_____	_____
28. Getting hooked and connected to Internet is easy.	_____	_____	_____	_____	_____

Please tell how you felt about the long time to get connected.____

_____

29. I want to learn more about students outside our region.	_____	_____	_____	_____	_____

Appendix B

Student Letters

Why should they be one of the Chicago Six?

It would be a great honor for me to be chosen as one of the six students to attend the trip to Chicago. It would be nice to be able to represent the Le-Win School District and at the same time gain experience by working with the internet. I feel I am a responsible person who can take in all valuable information and in return, share it with my classmates. Being a new student at Le-Win I have found the study of the Pecatonica River to be interesting. I am fortunate to have this chance to better my knowledge on both the internet and the Pecatonica River.

BEST COPY AVAILABLE

DEAR MRS. JACOBS

I AM A GOOD CHILD. I AM NOT A BEHAVIOR PROBLEM. I GET ALONG WITH PEOPLE WELL. I AM GOOD AT TAKING NOTES. I CAN REMEMBER A LOT OF THINGS. I WANT TO LEARN MORE ABOUT WHAT WE ARE DOING IN THE PECATONICA FLOODING PROJECT. IT WOULD BE A GREAT EXPERIENCE FOR ME. IF I AM SELECTED I WOULD BE A GOOD REPRESENTATIVE OF OUR SCHOOL.

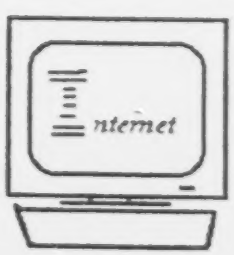
THANK YOU FOR CONSIDERING ME FOR THIS TRIP.

SINCERELY,

DEAR MRS. JACOBS

I WANT TO BE THE ONE TO BE SELECTED TO STAY IN CHICAGO FOR AN OVERNIGHT TRIP. I WOULD REALLY ENJOY GOING TO THE MUSEUMS AND LOOKING AT SOME OF THE THINGS THAT WE HAVE ALREADY LEARNED THIS YEAR. I HOPE THIS COULD POSSIBLY IMPROVE MY SCIENCE GRADE SEEING THE THINGS WE LEARNED IN OUR SCIENCE BOOK. IT WOULD BE NICE TO SEE WHAT THE MUSEUMS HAVE THERE . IT WOULD BE A PLEASURE OF GOING THERE. .

Many kids will write to you wanting to go on the tour for the internet. I believe you should pick me for many reasons. One reason is because I am skilled on the internet computer. I know how to work it very very good plus if I am choosen I will be on my best behavior and I won't be craby or whinny. I have never in my life had a opportunity like this before. I take many notes ,so I think I could handle taking notes and you can tell I take alot of notes because I mostly get A's on my tests. At my house I have a computer I am skilled with it, and I always find something new! So I know I would be smart at most of the things on the internet computer. If I get to go I would be honered!



LOVE,

BEST COPY AVAILABLE

Student Letters

Describing what the classroom would be like
without computers and the Internet.

I think we need to use the computer more, so everybody knows how to use it. I like the computers in our room it would be boring if we didn't have them. The computers will help us later on in life. I like the new computer, but I can't wait until we get on the inernet. I also can't wait until we go to see the Pec. River. I also can't wait until the corner gets done its going to look great. I want to learn a lot more about the new computer. I'm glad i'm in Mrs. Jacobs class so I can use the computers.

BEST COPY AVAILABLE

If we didn't have computers we would have to write everything out by hands. It's good to learn how to type when your young. If we didn't have an Internet we couldn't learn about different things in the world. On the Internet I like to take pictures, and the puzzles are really neat. I like the movies you can make. I think it's cool to have pen-pals, but instead of writing a letter on paper you can do it on a computer.

By:

BEST COPY AVAILABLE

I think it would be boring without the computers. Everytime I get done with something I always want to go back to the computers. I would always get in trouble because I would have everything log and it would be doing nothing. The Internet computer is cool! You have penpals and you can draw pictures on it. You can even do puzzles and put words on people. The E-mail is cool and cool because they are so far away.

BEST COPY AVAILABLE

Appendix C

Snapshots of Activities

Bird Watching Field Trips

'Surfing' the Internet

Working on Their Projects

BEST COPY AVAILABLE

Pecatonica River Field Trip

The Chicago Six at hands on Museum (Relaxing?)

Appendix D

Media Coverage

0128

KiDS LIFE
The Journal-Standard

PAG

DAY MAY 3, 1996

LEARNING

On the River

Research conservationist John Pinkowski shows students the different layers of sediment which have been deposited over time along the bank of the Pecatonica River.

Lena-Winslow students study nature with a little help from the government

BEST COPY AVAILABLE

McCONNELL — Students from Lena-Winslow Elementary School traveled to the great outdoors recently for a lesson in nature.

Members of Barb Jacobs' fifth-grade class made the trip to the Pecatonica River near McConnell to perform experiments and get a close-up view of the things they had been studying in class for several weeks.

The trip was funded through a Museum in the Classroom grant that the school received through the Illinois State Board of Education. The $30,000 grant money also will pay for a trip to the Chicago Academy of Sciences Museum for Jacobs and selected students in her class.

At the river site, John Pinkowski, a resource conservationist from the Stephenson County Soil and Water Conservation District, led the students through various experiments to study the effects of flooding on plants and animals.

The field trip started with a muddy walk down to the Pecatonica River bank to get some soil samples from at least two different locations, which will be taken back to Lena for examination.

"They'll go back to school with the soil samples and compare the life in the soils near the flood plain and away from it. You can learn interesting things in the soils," said June Stewart, who supervised the outing at the river.

Perhaps the biggest excitement of the day came when the students uncovered a worm during their dig for soil and they all strained to get a glimpse of the creature.

"They're studying earthworms now. They're really into that," Stewart said.

Next came a study of soil erosion complete with a demonstration model that Pinkowski brought out from the back of his truck. With

STORY BY TODD MCKENNA PHOT

BEST COPY AVAILABLE

FAR LEFT, Dan Kramer, left, Matt Campbell and Ross Vehmeier watch as Pinkowski turns over a chuck of sod to check for life forms in the soil. LEFT, Le-Win student Erica Fox, left, holds a glass jar to catch the runoff during an erosion simulation as fellow student Danielle Larson creates the "rainstorm" during the class' trip to the Pecatonica River in McConnell.

the help of a tray of dirt and a coffee can with small holes in the bottom, Pinkowski shows students on a smaller scale what happens in nature to wash away topsoil.

"I simulate a rainstorm to show how erosion occurs. The water hits the soil and (the soil) breaks apart. There are a number of types of erosion and when the water is moving fast enough, it cuts channels in the soil," Pinkowski said.

He then went on to explain how flooding occurs along streams and rivers if the rainfall is heavy. "The soil particles end up in the river and fill the river channel. They can't carry as much water and it backs up and causes flooding," Pinkowski said.

The demonstrations suited the students just fine, as several were happy to take a trip away of the classroom for a change.

"We get to pick up soil and look at trees. It's nice to get outside for a while." Matt Campbell said.

Another benefit to the river work is that the lessons end when the kids leave the site.

"It's pretty cool, and there's no homework," Ross Vehmeier said.

Pinkowski took the water full of soil particles he collected from the erosion experiment and explained that erosion not only hurts farmers because the topsoil is removed, but also spells trouble for aquatic life because it interferes with their breathing.

"The clay particles cover their gills and they die," Pinkowski said.

Aquatic life needs clean water with no pollution in order to thrive, he said. Also, the temperature plays a major part in their lifestyle.

"Warm water can't hold as much oxygen. The Pec River has a low of about 32 degrees in winter and gets to about 75 degrees in summer. Also, bacteria grows more in warmer temps," Pinkowski said.

The experiments will continue once the students go back to the classroom. All of the samples taken at the river site will be used to prepare a final report on the effects on the flood plain both before and after a flood.

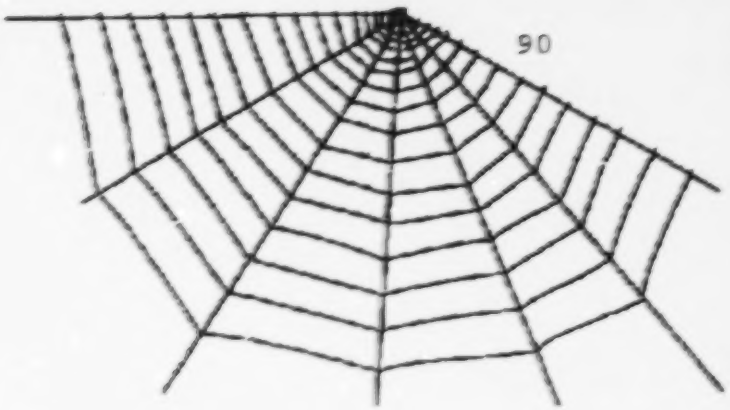
OGRAPHS BY CHRISTOPHER HANKINS

BEST COPY AVAILABLE

Appendix E

Internet Addresses

Fabulous Web Sites



- *http://sln.fi.edu/tfi/hotlists/math.html*

  This is the Franklin Institute - Science Museum in Philadelphia's site which has many math resources, interactive exhibits, quick time movies, and *inQuiry Almanack* - an online monthly magazine "for educators using the Internet to support inquiry-based learning in the classroom."

  http://scholastic.com:2005/

  This is Scholastic's home page. There are resources for both teachers and students at this Web site.

- *http://web66.coled.umn.edu/*

  Here you will find a project to aid educators to integrate Internet into K12 curricula.

- *http://www.nsf.gov/*

  This is the URL for the National Science Foundation World Wide Web Server.

- *http://www.ncrel.org/ncrel*

  This is the URL for the North Central Regional Education Laboratory in Oakbrook, IL. It offers a gopher link to the Eisenhower Math/Science Consortium (gopher://gopher.cic.net:3015/11/subjects/math-sci)

- http://www.cusd.claremont.edu/www/people/rmuir/rfc1578.html

  You can find the answers to frequently asked questions about the internet at this Web site.

- http://gsn.org

  At this site, select Global Schoolhouse from the menu and you will find instructional applications of telecommunications (note: GSN was formerly called FrEd Mail - Free Education Mail)

- http://www.cudenver.edu/~mryder/itcon.html

  At this site you will find instructional technology connections from the University of Colorado at Denver, complete with educational gophers and links to online monographs and projects online.

- hppt://www.cris.com/~felixg/OE/OEWELCOME.html

  This is the site for the publication ONLINE EDUCATOR. Its goal is to make "the Internet an accessible, useful classroom tool."

World Wide Web Sites for Educators

	SITE	ADDRESS
1.	Ameritech Homepage	http://www.ameritech.com/
2.	Web66	http://web66.coled.umn.edu/
3.	Academy One	http://www.[illegible]/cyber.serv/AOneP/
4.	Global SchoolNet Foundation	http://www.gsn.org/
5.	Classroom Connect	http://www.wentworth.com/
6.	Consortium for School Networking	http://cosn.org/
7.	NASA Quest	http://quest.arc.nasa.gov/
8.	Scholastic Central	http://scholastic.com:2005/
9.	Cyberspace Middle School	http://www.scri.fsu.edu/~dennisl/CMS.html
10.	AIMS	http://204.161.33.100/AIMS.html
11.	MathMagic	http://forum.swarthmore.edu/mathmagic/
12.	Math/Science Fair	http://www.educ.wsu.edu/fair_95/announcement.html
13.	MegaMath	http://www.c3.lanl.gov/mega-math/welcome.html
14.	Whitehouse	http://www.whitehouse.gov/
15.	Disney	http://www.disney.com
16.	Holocaust Museum	http://www.ushmm.org/
17.	Field Museum	http://www.bvis.uic.edu/museum/index.html
18.	US Bureau of Census	http://www.census.gov/
19.	Educational Networking Consortium	http://www.enc.anl.gov/enc/encmain.html
20.	Grant's Web	http://infosery.ttonet.psu.edu/gweb.htm/

Tech It Out!

CHECK OUT THE SITES!

Explore Web sites that are fun and educational

Classroom Connect On-the-Net
URL: http://www.classroom.net
The easiest way to locate the best K-12 education

Carlo's Interactive Coloring Book
URL: http://robot0.ge.uiuc.edu/~carlosp/color/
Kindergarten through third graders will love this interactive coloring book. Children can print their finished work.

Global Show-n-Tell
URL: http://emma.manymedia.com:80/show-n-tell/
A virtual exhibition that encourages children to show off their work. Favorite projects, accomplishments, and collections can be shown to kids all over the world.

The Louvre
URL: http://mistral.enst.fr/~pioch/louvre/louvre.shtml
Visit this version of the Louvre 24 hours a day. For a quick tour of Paris, check out:
URL: http://sunsite.unc.edu/wm/paris/

Origami Page
URL: http://www.cs.ubc.ca/spider/jwu/origami.html
Learn the art of origami. This site features dozens of paintable origami designs.

Sistine Chapel
URL: http://www.christusrex.org/www1/sistine/0-Tour.html
Check out more than 325 images of the chapel.

The Poetry Corner
URL: http//pluto.njcc.com/~begun/welcome.html
This site features poetry written by and for Internet users.

Bartlett's Familiar Quotations
URL: http://www.columbia.edu/~sv12/
Find out who said it and when.

Children's Literature Web Guide
URL: http://www.ucalgary.ca/dkbrown/index.html
For a sample of the best children's literature for any grade level.

Complete Works of William Shakespeare
URL: http://the-tech.mit.edu/Shakespeare/works.html
It's all here–from *All's Well That Ends Well* to *Venus and Adonis*. As students read each play, they can click on highlighted words and phrases for definitions.

Purdue Online Writing Laboratory
URL: http://owl.trc.purdue.edu
The writing doctor is always in on the Internet. Kids can ask the most challenging questions about grammar.

CityLink Project
URL: http://www.neosoft.com:80/citylink/
For a tour of cities in all 50 states and the U.S. Virgin Islands, check out the USA CityLink Project. You'll find pictures of landmarks, online local newspapers, demographic information, and links to city and state government organizations.

Kidscom
URL: http://www.kidscom.com
For fun ways to learn geography, this site features a game that challenges kids to guess the name of the capital city of dozens of countries.

Children's Medical Center
URL: http://galen.med.virginia.edu/~smb4v/cmchome.html
The world's first hospital without walls, this site contains information about children's health.

DNA to Dinosaurs
URL: http://www.bvis.uic.edu/museum/exhibits/Exhibits.html
Fun, educational site about dinosaurs

Balance
URL: http://tito.hyperlink.com/balance/
This online magazine covers health and fitness, including exercise, diet and nutrition, stress reduction, and disease prevention.

The Classroom Connect Search Page
URL: http://www.wentworth.com/classroom/search.htm
Home to all of the Internet's searching tools. This is the only address you'll ever need to find something anywhere online.

To learn how to create a Web page:

Web Page Basics
URL: http://www.emedia.net/pointers/html.html

Beginner's Guide to Making Web Pages
URL: http://www.ncsa.uiuc.edu/General/Internet/www/HTMLPrimer.html

For more information

about these and other sites, subscribe to Classroom Connect's monthly k-12 newsletter and sign up on the Classroom Connect electronic mailing list. To subscribe or obtain more information, E-mail: connect@classroom.net

BEST COPY AVAILABLE